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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/551,099

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Atsushi Tanno

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1690

7590

02/10/2009

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EXAMINER

FISCHER, JUSTIN R

ART UNIT

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1791

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/551,099	Applicant(s) TANNO, ATSUSHI	
	Examiner Justin R. Fischer	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 9, 10, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mama (JP 11-34610, of record) and further in view of Kojima (JP 58167203, of record).

Mama is directed to a pneumatic tire construction comprising at least two belt plies 5a,5b and a belt cover ply 6 formed of circumferentially-oriented cords (Figure 3). The reference further teaches that the axial outer ends of said belt cover ply are spaced from the respective axial outer ends of the outermost belt ply 5b by an amount "b" between 15 and 40 mm (Abstract). Based on this disclosure, one of ordinary skill in the art at the time of the invention would have expected the separation between the ends of layer 5a and the belt cover ply to be at least 10 mm (belt ends are extremely close to one another).

In regards to radial separation of the respective axial ends, the reference generally depicts the axial ends of the belt cover ply and the belt plies as being relatively close to one another. It is further noted that the claimed quantitative relationship is a function of the tire section height, which varies between types of tires (heavy-load tires and agricultural tires have larger section heights)- this suggests that

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the claimed quantitative relationship is even more likely to be satisfied in the tire of Mama (especially the case since the separation is defined as an absolute dimension).

Lastly, with respect to the independent claim, Mama is completely silent with respect to the coating rubber of the belt cover ply. Kojima, on the other hand, suggests the use of a coating rubber for belt plies having a loss factor or tangent delta greater than 0 and less than 0.10 in order to eliminate the occurrence of fatigue and deterioration commonly experienced during running (Abstract). In this instance, a fair reading of Kojima suggests that the coating rubber is broadly applicable for all belt plies since the disclosed benefits are equally applicable to the general class of belt plies (working plies and protective plies). Thus, one of ordinary skill in the art at the time of the invention would have found it obvious to use a coating rubber having a loss factor less than 0.1 in the belt cover ply of Mama.

Regarding claims 2 and 10, the claim language is directed to the method in which the belt cover ply is formed and thus does not further define the structure of the claimed tire. Furthermore, it is well recognized that belt cover plies are commonly formed by partially overlapping adjacent coils (consistent with the conventional structure of belt cover plies).

As to claims 17 and 18, Mama is broadly directed to tires for pneumatic vehicles and such would include passenger car tires.

3. Claims 3, 5, 11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mama and Kojima as applied in claim 1 and 6 above, respectively.

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and further in view of Mochida (JP 02074403, of record) and Yamamoto (JP 06092108, of record).

As detailed above, Mama in view of Kojima substantially teach the claimed tire construction, including an outermost belt cover ply that extends beyond underlying belt plies. While Mama fails to include a belt edge cushion rubber layer, it is extremely well known to include such a cushion layer in order to eliminate the buildup of stresses in the shoulder region, as shown for example by Mochida (reference character 21- Page 4, 2nd Column) and Yamamoto (Abstract and Figures). It is particularly noted that Mochida and Yamamoto (Figure 1) are directed to an extremely similar tire construction in which an outermost belt cover ply extends beyond underlying belt plies. Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to include a conventional belt edge cushion rubber layer in the tire of Mama.

4. Claims 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mama, Kojima, Mochida, and Yamamoto as applied in claims 3 and 11 above and further in view of Motomura (US 5,215,612, of record).

While Mochida provides motivation to include a belt edge cushion rubber in the tire of Mama, the reference is completely silent with respect to the loss factor or tangent delta of the cushion rubber. Motomura, on the other hand, recognizes the known use of rubber compositions having a tan delta between 0.07 and 0.15 for similar belt edge cushion rubber layers (Column 3, Lines 45-55)- such a rubber is recognized as providing suitable reinforcement without generating/accumulating heat. One of ordinary

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skill in the art at the time of the invention would have found it obvious to use a rubber having a tangent delta below 0.15 to form the cushion rubber of Mama in view of Kojima and Mochida for the reasons detailed above. Lastly, while the tangent delta is recorded at room temperature, those compositions having a tangent delta at the lower end of the range would not be expected to more than double with an increase of 40 degrees Celsius and applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed range.

5. Claims 9, 10, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mama and further in view of Yamaguchi (JP 6-344721, newly cited) and Kojima.

As detailed above, Mama substantially teaches the claimed tire construction, including a belt cover ply that extends at least 15 mm beyond the ends of the underlying belt structure. In this instance, the belt design of Mama contributes to, among other things, improved high speed endurance.

Yamaguchi is directed to a similar tire construction having an outermost belt cover ply that extends beyond the ends of an underlying belt structure and is formed of zero degree reinforcement cords. The reference further suggests the use of cords having different properties in the central region, as compared to each side region, in order to enhance high speed durability. One of ordinary skill in the art at the time of the invention would have found it obvious to adopt such an assembly in the tire of Mama since it is consistent with the advantages desired by Mama. Yamaguchi further teaches that such a belt cover ply can be formed by including a central belt cover ply (analogous

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to claimed main belt cover section) and a pair of side belt cover plies (analogous to separate belt cover extensions) (Paragraph 12).

Lastly, with respect to claim 9, Mama is completely silent with respect to the coating rubber of the belt cover ply. Kojima, on the other hand, suggests the use of a coating rubber for belt plies having a loss factor or tangent delta greater than 0 and less than 0.10 in order to eliminate the occurrence of fatigue and deterioration commonly experienced during running (Abstract). In this instance, a fair reading of Kojima suggests that the coating rubber is broadly applicable for all belt plies since the disclosed benefits are equally applicable to the general class of belt plies (working plies and protective plies). Thus, one of ordinary skill in the art at the time of the invention would have found it obvious to use a coating rubber having a loss factor less than 0.1 in the belt cover ply of Mama.

Regarding claim 10, the claim language is directed to the method in which the belt cover ply is formed and thus does not further define the structure of the claimed tire. Furthermore, it is well recognized that belt cover plies are commonly formed by partially overlapping adjacent coils (consistent with the conventional structure of belt cover plies).

6. Claims 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mama, Yamaguchi, and Kojima as applied in claim 9 above, respectively, and further in view of Mochida (JP 02074403, of record) and Yamamoto (JP 06092108, of record).

As detailed above, Mama, in view of Yamaguchi and Kojima, substantially teaches the claimed tire construction, including an outermost belt cover ply that extends beyond underlying belt plies. While Mama fails to include a belt edge cushion rubber layer, it is extremely well known to include such a cushion layer in order to eliminate the buildup of stresses in the shoulder region, as shown for example by Mochida (reference character 21- Page 4, 2nd Column) and Yamamoto (Abstract and Figures). It is particularly noted that Mochida and Yamamoto (Figure 1) are directed to an extremely similar tire construction in which an outermost belt cover ply extends beyond underlying belt plies. Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to include a conventional belt edge cushion rubber layer in the tire of Mama.

7. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mama, Kojima, Mochida, and Yamamoto as applied in claim 11 above and further in view of Motomura (US 5,215,612, of record).

While Mochida provides motivation to include a belt edge cushion rubber in the tire of Mama, the reference is completely silent with respect to the loss factor or tangent delta of the cushion rubber. Motomura, on the other hand, recognizes the known use of rubber compositions having a tan delta between 0.07 and 0.15 for similar belt edge cushion rubber layers (Column 3, Lines 45-55)- such a rubber is recognized as providing suitable reinforcement without generating/accumulating heat. One of ordinary skill in the art at the time of the invention would have found it obvious to use a rubber having a tangent delta below 0.15 to form the cushion rubber of Mama in view of Kojima

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and Mochida for the reasons detailed above. Lastly, while the tangent delta is recorded at room temperature, those compositions having a tangent delta at the lower end of the range would not be expected to more than double with an increase of 40 degrees Celsius and applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed range.

8. Claims 1, 6, 8-10, 14, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Serra (WO 2002/26878, of record) and further in view of Yamaguchi, Mama, and Kojima.

As best depicted in Figure 1, Serra is directed to a pneumatic tire construction comprising a pair of belt plies 106a, 106b, and under tread rubber layer 111, a cap tread rubber layer 111, and a wing chip rubber layer 110. It is further noted Serra suggests the inclusion of a belt cover ply 106c.

Yamaguchi is directed to a similar tire construction having an outermost belt cover ply formed of zero degree reinforcement cords. The reference further suggests the use of cords having different properties in the central region, as compared to each side region, in order to enhance high speed durability. One of ordinary skill in the art at the time of the invention would have found it obvious to adopt such an assembly in the tire of Serra in order to obtain the aforementioned benefit. Yamaguchi further teaches that such a belt cover ply can be formed by including a central belt cover ply (analogous to claimed main belt cover section) and a pair of side belt cover plies (analogous to separate belt cover extensions) (Paragraph 12).

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Furthermore, while the belt cover ply of Serra is depicted as having an axial extent approximately equal to the width of the underlying belt structure, the reference fails to place a criticality on the axial extent of the belt cover ply (layer described as being optional). It is well known to arrange the belt cover ply such that it extends beyond the ends of the underlying belt structure in order to ensure complete protection of the underlying belt structure, as shown for example by Yamaguchi and Mama. In particular, the belt cover ply of mama is described as extending beyond the belt ends by a distance between 15 and 40 mm. It is further noted that Mama suggests that such a construction (for the belt ply) reduces road noise, which would be desirable in all tire constructions. It is emphasized that Serra places no criticality on the axial extent of the belt cover ply and applicant has not provided a conclusive showing of unexpected results.

Also, in such an instance, the ends of the belt cover ply and the underlying belt structure are not separated by a substantial radial distance and one of ordinary skill in the art at the time of the invention would have expected the tire of Serra to satisfy the claimed range, it being noted that the claimed quantitative relationship is a function of the tire section height, which varies between types of tires (heavy-load tires and agricultural tires have larger section heights)- this suggests that the claimed quantitative relationship is even more likely to be satisfied in the tire of Serra.

Lastly, with respect to the independent claim, Serra is completely silent with respect to the coating rubber of the belt cover ply. Kojima, on the other hand, suggests the use of a coating rubber for belt plies having a loss factor or tangent delta greater

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than 0 and less than 0.10 in order to eliminate the occurrence of fatigue and deterioration commonly experienced during running (Abstract). In this instance, a fair reading of Kojima suggests that the coating rubber is broadly applicable for all belt plies since the disclosed benefits are equally applicable to the general class of belt plies (working plies and protective plies). Thus, one of ordinary skill in the art at the time of the invention would have found it obvious to use a coating rubber having a loss factor less than 0.1 in the belt cover ply of Serra.

With respect to claims 8 and 16, Serra depicts the radially inner end of the wing chip rubber in the shoulder portion of the tire. Given such a general disclosure, one of ordinary skill in the art at the time of the invention would have readily appreciated a wide variety of embodiments, including those in which respective components are separated by at least 10 mm. It is emphasized that Serra fails to place a criticality on the axial separation and the figures of Serra generally depict a separation that would be expected to be on the order of 10 mm. Lastly, applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed separation.

As to claims 17 and 18, Mama is broadly directed to tires for pneumatic vehicles and such would include passenger car tires.

9. Claims 7 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Serra, Yamaguchi, Mama, and Kojima as applied in claims 6 and 14 respectively and further in view of Kan (US 4,444,236, of record) and Haneda (JP 07257116, of record).

As detailed above, Serra discloses a pneumatic tire construction comprising a cap tread layer and a base tread layer (undertread). While the reference fails to

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expressly disclose the respective loss factors (tangent delta) for each layer, Kan teaches a similar cap/base assembly and suggests a loss factor relationship in accordance to the claimed invention. In particular, such a construction provides a tire that is balanced in rolling resistance and wet grip (Column 1, Lines 1-20 and Tables 1-3). It is emphasized that each of the inventive cap/base assemblies listed in table 3 satisfies the quantitative relationship of the claimed invention. It is further noted that while the tangent delta is recorded at 30 degrees Celsius, the listed compositions would not be expected to more than double with an increase of 30 degrees Celsius and applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed range. Haneda has been further provided to evidence the use of rubber compositions (for wing chip rubber layers) having a relatively low tangent delta in order to reduce the rolling resistance. As such, one of ordinary skill in the art at the time of the invention would have found it obvious to form the wing chip rubber layer and the tread base layer in accordance to the claimed invention.

Response to Arguments

10. Applicant's arguments filed November 26, 2008 have been fully considered but they are not persuasive.

Applicant initially argues that Kojima fails to disclose a belt cover ply. The examiner agrees. The reference, however, is not applied to teach a belt cover ply. Each of Mama and Serra include a belt cover ply and Kojima is simply applied to evidence the known use of belt topping rubber compositions, in general, having a hysteresis less than 0.1 (desirable to have low amount of heat generation). It is

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emphasized that a fair reading of the reference suggests the known use of belt topping rubbers satisfying the claimed properties and applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed hysteresis. First, each of the disclosed hysteresis values (disclosed by Kojima) falls within the claimed range and thus, the combination does not involve picking and choosing from a broad range. Second, the results of Present Invention Tire 1 and Comparison Tire 2 (only difference being hysteresis) do not constitute a conclusive showing of unexpected results.

With respect to the h/SH ratio, the results of Comparison Tire 1 and Present Invention Tire 1 (only difference being h/SH) do not constitute a conclusive showing of unexpected results.

Regarding claim 9, Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

As to Serra and Mama, applicant contends that the references fail to disclose a radial distance between the belt cover layers and the underlying belt layers. It is agreed that the references fail to expressly teach the claimed ratio; however, as noted above, the reference generally depicts the axial ends of the belt cover ply and the belt plies as being relatively close to one another. It is further noted that the claimed quantitative relationship is a function of the tire section height, which varies between types of tires (heavy-load tires and agricultural tires have larger section heights)- this suggests that the claimed quantitative relationship is even more likely to be satisfied in the tire of Mama (especially the case since the separation is defined as an absolute dimension).

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Also, as mentioned above, Table 1 does not provide a conclusive showing of unexpected results for the claimed ratio.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R. Fischer** whose telephone number is **(571) 272-1215**. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Justin Fischer
/Justin R Fischer/
Primary Examiner, Art Unit 1791
February 9, 2009